Computational Logic

# CoCo 2014 Participant: CeTA

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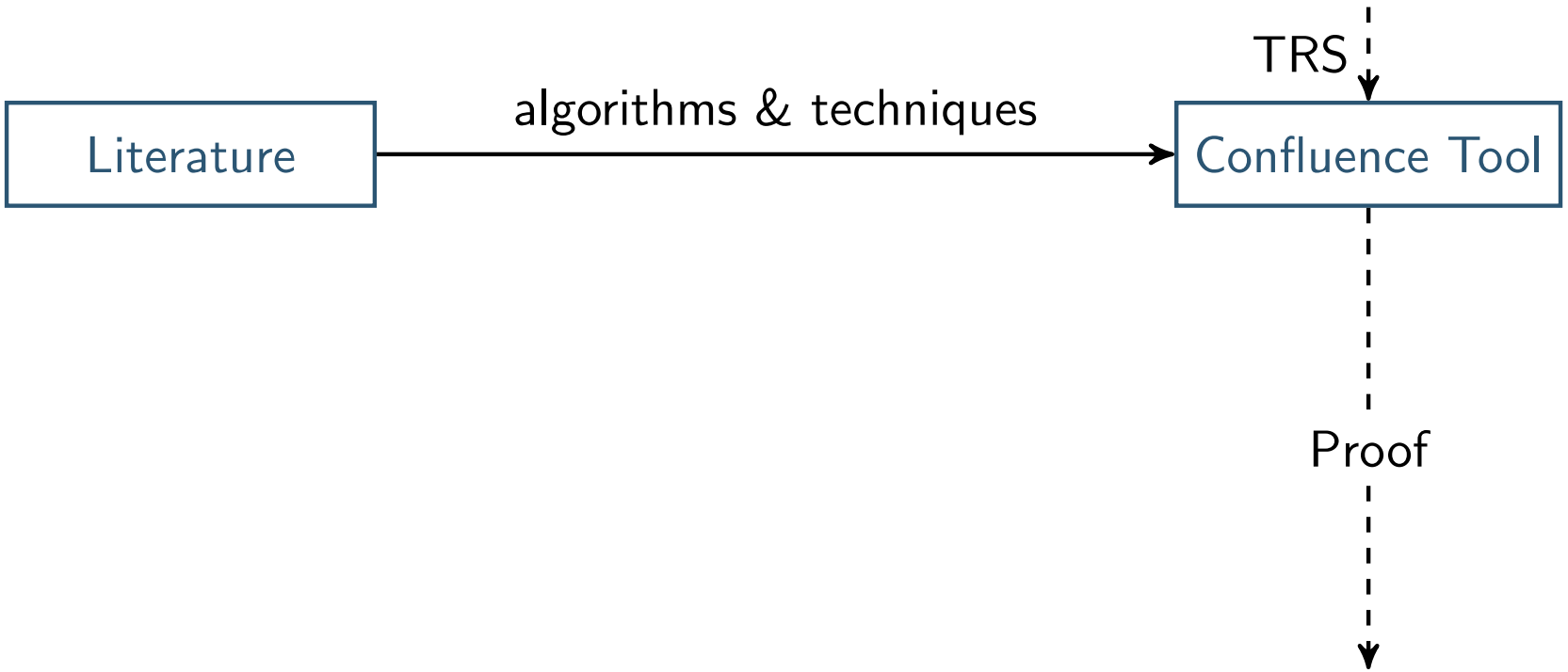
# Overview


TRS
Literature
algorithms & techniques
Confluence Tool
Proof

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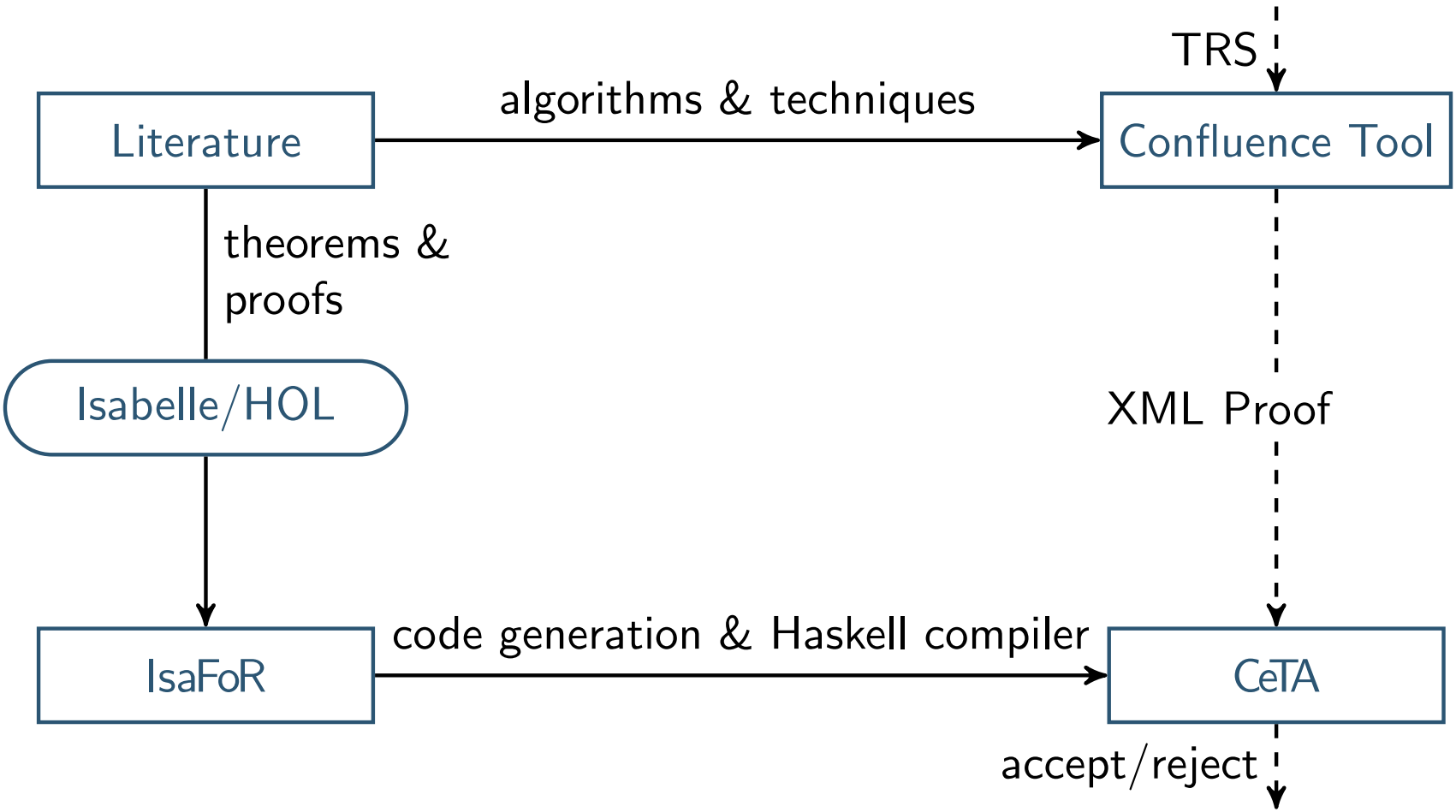
TRS
Literature
algorithms & techniques
Confluence Tool
theorems &
proofs
Isabelle/HOL
XML Proof
IsaFoR
code generation & Haskell compiler
CeTA
accept/reject

# Certifiable Techniques

## Confluence

- terminating and locally confluent
- weakly orthogonal
- linear and strongly closed
- linear and all critical peaks decreasing via rule labeling

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## Non-confluence

- $t_1 \,{}^*\!\leftarrow s \rightarrow^* t_2$ with $t_1$ and $t_2$ not joinable
- $tcap(t_1\sigma)$ and $tcap(t_2\sigma)$ are not unifiable
- usable rules, discrimination pairs, argument filters and interpretations
- reachability analysis using tree automata
- modularity

# More Details

J. Nagele and R. Thiemann.
Certification of confluence proofs using CeTA.
In *Proc. 3rd International Workshop on Confluence*, pages 19–23, 2014.

## IsaFoR/CeTA

`http://cl-informatik.uibk.ac.at/software/ceta/`

## Certification Problem Format

`http://cl-informatik.uibk.ac.at/software/cpf/`